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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,834	08/21/2003	Aravind Keshav Mistry	15013-US	6147

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EXAMINER

TARANINA, MARINA Y

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/644,834

Applicant(s)

MISTRY ET AL.

Examiner

Marina Taranina

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1-10 and 11-15 are objected to because of the following informalities:
2. (1) Claim 11 line 4 recites the limitation "the lightpath". It should be replaced with "the **selected** lightpaths" in order to make a proper antecedent basis for the limitation.  
(2) In claim 1, there are no transitional phrases, for example, "comprising", "consisting essentially of" and "consisting of" in the claims. The transition phrases "comprising", "consisting essentially of" and "consisting of" define the scope of claim with respect to what unrecited additional components or steps, if any, are excluded from the scope of the claims.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:  

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 1, 11 and 16 are rejected under 112, 1<sup>st</sup> paragraph as being a single means claim, i.e.. where a means ("employing a bridge and roll technique" in claim 1 and "means to implement bridge and roll protocol" in claims 11 and 16) recitation does not appear in combination with another recited element of means, with under breadth.  
The single means claim which covered every conceivable means for achieving the

stated purpose was held nonenabling for the scope of claim because the specification disclosed at most only those known to the inventor. See MPEP §2164.08(a).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6, 8-13, 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano (US 6,947,377) in view of Walters (US 2002/0176131).

(1) With respect to Claim 1, Shimano discloses a method of non-disruptively modifying the routing of lightpaths in an optical network by employing a bridge and roll technique (col. 5 lines 44-55) in combination with the use of temporary path protection to change the routing of selected lightpaths (col. 4 lines 29-38, col. 4 line 60-col. 5 line 1).

Shimano fails to specify that his method is employed in a mesh network.

However, Walters teaches an optical network with mesh topology (fig. 1, page 3 para 0073).

It is advantageous to use a network in mesh configuration because of its flexibility (ease of growth) characteristics.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify optical network of Shimano by employing mesh topology as taught by Walters as to provision flexibility and ease of possible future growth/upgrade of the network.

(2) With respect to Claim 2, Shimano discloses the method as defined in claim 1 wherein the bridge and roll technique (col. 5 lines 44-55) is employed with the lightpath in service (traffic variations, col. 4 lines 29-38).

(3) With respect to Claim 3, Shimano discloses the method as defined in claims 1 and 2 above, but fails to specify that his method of path protection is for a working lightpath.

However, Walters teaches the method of path protection for a working lightpath (fig. 3-c, page 19 para 0292).

It is desirable to use a path protection rather than line protection for a working lightpath because it allows more efficient use of wavelengths resources in terms of back-up traffic (page 19, para 0291).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the method of path protection for a working lightpath (fig. 3-c, page 19 para 0292) as taught by Walters in the optical network of Shimano as to allow more efficient use of wavelengths resources in terms of back-up traffic.

(4) With respect to Claim 4, Shimano discloses the method as defined in claim 2 wherein the selected lightpath is a protection lightpath (col. 6 lines 47-51)

(5) With respect to Claim 5, Shimano discloses the method as defined in claim 1 wherein the network operates in a wave division multiplex (WDM) mode (col. 9 lines 49-52, 56-60).

Shimano fails to specify that his method is employed in a mesh network.

However, Walters teaches an optical network with mesh topology (fig. 1, page 3 para 0073).

It is advantageous to use a network in mesh configuration because of its flexibility (ease of growth) characteristics.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify optical network of Shimano by employing mesh topology as taught by Walters as to provision flexibility and ease of possible future growth/upgrade of the network.

(6) With respect to Claim 6, Shimano discloses the method as defined in claim 1 wherein the bridge and roll technique (col. 5 lines 44-55) is operator directed (col. 4 lines 61-63).

(7) With respect to Claim 8, Shimano discloses the method as defined in claim 4 wherein the routing of the selected protection lightpath is employed in a multi-hop, end to end configuration (Nodes A-B-C-E or A-D-E in fig. 4-7) (col. 5 lines 39-47).

(8) With respect to Claim 9, Shimano discloses the method as defined in claim 1 wherein a network management system (OpS or 15 in fig. 4) is employed to implement route modifications (col. 5 lines 39-46).

(9) With respect to Claim 10, Shimano discloses the method as defined in claim 9 wherein the network management system (OpS or 15 in fig. 4) requests a lightpath routing modification (col. 5 lines 50-55).

(10) With respect to Claim 11, Shimano discloses a system for non-disruptively modifying the routing of lightpaths in an optical communication network, the system comprising:  
means (OpS or 15 in fig. 4) to implement a bridge and roll protocol (col. 5 lines 44-55) wherein temporary paths are employed to change selected lightpaths without having to take the lightpath out of service (col. 4 lines 29-38, col. 4 line 60-col. 5 line 1).

Shimano fails to specify that his optical communication network has a mesh topology.

However, Walters teaches an optical network with mesh topology (fig. 1, page 3 para 0073).

It is advantageous to use a network in mesh configuration because of its flexibility (ease of growth) characteristics.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify optical network of Shimano by employing mesh topology as taught by Walters as to provision flexibility and ease of possible future growth/upgrade of the network.

(11) With respect to Claim 12, Shimano discloses the system as defined in claim 11 wherein lambda level switching means (24, 34 in fig. 12-15, col. 7 lines 13-21, "use

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of wavelengths for path routing”, col. 9 lines 51-52) at end point nodes (A and E in fig. 4-7) coordinate switching of connections from a working path to a protection path (.

(12) With respect to Claim 13, Shimano discloses the system as defined in claim 11 wherein a network management system (OpS or 15 in fig. 4) implements the bridge and roll protocol (col. 5 lines 44-55).

(13) With respect to Claim 15, Shimano discloses the system as defined in claim 13 wherein the network management system (OpS or 15 in fig. 4) employs a multi hop protection scheme to protect a lightpath end to end (Nodes A-B-C-E or A-D-E in fig. 4-7) (col. 5 lines 39-47).

(14) With respect to Claim 16, Shimano discloses a network management system (NMS) for use in an optical communication network to modify, non-disruptively, the routing of a lightpath, the NMS comprising means (OpS or 15 in fig. 4) to implement a bridge and roll protocol (col. 5 lines 44-55) in combination with temporary path protection to change the routing of a selected lightpath while the lightpath remains in-service (col. 4 lines 29-38, col. 4 line 60-col. 5 line 1).

Shimano fails to specify that his optical communication network has a mesh topology.

However, Walters teaches an optical network with mesh topology (fig. 1, page 3 para 0073).

It is advantageous to use a network in mesh configuration because of its flexibility (ease of growth) characteristics.



Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify optical network of Shimano by employing mesh topology as taught by Walters as to provision flexibility and ease of possible future growth/upgrade of the network.

(15) With respect to Claim 17, Shimano discloses all the subject matter as recited in Claim 16, but fails to teach NMS which enables a user to create a protection segment group and a protection branch group.

However, Walters teaches NMS which enables a user (via GUI) to manually create lightpaths (page 20, para 0304 lines 4-12, para 0305 lines 8-10)

It is desirable to have an user-friendly network management tools that give the operator the ability to visualize and create network protection routing. Without this visualization, network maintenance activities and troubleshooting are difficult and error-prone.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Walters' teachings of using a graphical interface (GUI) to enable a user to create routing of a lightpaths into the system of Shimano as to simplify and improve reliability of the network maintenance activities and troubleshooting.

Further, although Walters doesn't specifically disclose "creating of a protection segment group and a protection branch group", such limitation are merely a matter of design choice and would have been obvious variation of Walters' system.

(16) With respect to Claim 18, Shimano discloses the NMS as defined in claim 16 for creating protection branches (col. 5 lines 44-46) and monitoring (col. 5 lines 47-55) and switching (set-up commands) lightpaths (col. 5 lines 46-47).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano (US 6,947,377) and Walters (US 2002/0176131), and further in view of Su (US 2002/0163682).

With respect to Claim 7, Shimano and Walters disclose all the subject matter as applied to claim 1 above, but fail to teach the method wherein the routing of the selected lightpath is employed in a single segment, single hop implementation.

However, Su teaches the method wherein the routing of the selected lightpath is employed in a single segment, single hop implementation (fig. 2, page 2 para 0026).

It is desirable to employ lightpath routing in a single segment, single hop implementation because it allows higher speed at which the protection (back-up) path is set up (page 1 para 0008 lines 3-6), which in turn allows re-route data traffic without interruption of service.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include method of lightpath routing in a single segment, single hop implementation as taught by Su into optical network of Shimano and Walters as to allow higher speed at which the protection path is set up and to allow re-route data traffic without interruption of service.

8. Claim 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano (US 6,947,377) and Walters (US 2002/0176131), and further in view of Elie-Dit-Cosaque (US 2004/0246892).

(1) With respect to Claim 14, Shimano and Walters disclose all the subject matter as applied to claims 11 and 13 above, but fail to teach the system wherein the network management system creates single segment protection of a single hop path.

Elie-Dit-Cosaque, however, teaches the system wherein the network management system (26 as a part of 20 in fig. 2) creates single segment protection of a single hop path (page 3 para 0030).

It is desirable to employ lightpath routing in a single segment, single hop implementation because it allows higher speed at which the protection path is set up, which in turn allows re-route data traffic without interruption of service.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include method of lightpath routing in a single segment, single hop implementation as taught by Elie-Dit-Cosaque into optical network of Shimano and Walters as to allow higher speed at which the protection path is set up and to allow re-route data traffic without interruption of service.

(2) With respect to Claim 19, Shimano and Walters disclose all the subject matter as applied to claims 18 and 16 above, but fail to teach the NMS for use in 1x1 and NxM segment protection.

Elie-Dit-Cosaque, however, teaches the NMS for use in 1x1 and NxM segment protection (para 0030).

It is desirable if NMS can be used in 1x1 and NxM segment protection because it allows higher speed at which the protection paths are set up, and adds flexibility and survivability to the network.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include method of using NMS in 1x1 and NxM segment protection as taught by Elie-Dit-Cosaque into optical network of Shimano and Walters as to allow higher speed at which the protection path is set up and to allows higher speed at which the protection paths are set up, and to add flexibility and survivability to the network.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,219,161 discloses optical layer survivability and security system

US 6,915,350 discloses method and device for selecting a communication path

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Taranina whose telephone number is 571 270 1085. The examiner can normally be reached on Mon-Fri (alternative Fri off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571 272 2600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MT  
13 Sep 2006

A handwritten signature in black ink, appearing to read 'Shuwang Liu', is written in a cursive style.

SHUWANG LIU  
SUPERVISORY PATENT EXAMINER